



Network Systems Organization

Federal Communications Commission
Equipment Approval Services
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Re: FCC ID H9PLA3021-500 Ref # 11565

Date: February 2, 2000

Dear Reviewer,

In response to the following Email:

To: Norman Nelson, Symbol Technologies, Inc.
From: Joe Dichoso
jdichoso@fcc.gov
FCC Application Processing Branch

Re: FCC ID H9PLA3021-500
Applicant: Symbol Technologies Inc
Correspondence Reference Number: 11565
731 Confirmation Number: EA94853
Date of Original E-Mail: 01/19/2000

Please address the following RF safety issues. Place any exhibits in the RF exposure info folder.

Symbol, EA 94853 (higher output version) -

1. With respect to requirements of 2.1091 and also see previous correspondence (9798, #3), a minimum separation distance of 20 cm is needed for the remote (external) antenna and standalone antenna configurations. Please revise the proposed RF exposure statement accordingly. The statement should also indicate that the operating requirement is for satisfying FCC RF exposure compliance. A suggested RF exposure statement to be included in the user's manual of remote and standalone antenna configurations - "Caution: To comply with FCC RF exposure requirements, antennas that are mounted externally at remote locations or operating near users in standalone desktop or similar configurations must operate with a minimum separation distance of 20 cm from all persons to satisfy RF exposure compliance." A copy of the manual should be submitted; or pages containing the statements but need to indicate where the pages will be placed in the manual. RF exposure statements should be located in manual sections that are obvious to its users, generally towards the front.

The following statement will be included in the Product Reference Guide and tagged with a warning graphic for emphasis:

"To comply with FCC RF exposure requirements, antennas that are mounted externally at remote locations or operating near users at stand-alone desktop of similar configurations must operate with a minimum separation distance of 20 cm from all persons."

Attached is a page from the PRG.

2. For the handheld devices, please provide a copy of the RF exposure instructions and statements that will be provided to the end users of these devices for satisfying RF exposure compliance requirements. Suggestion - "Caution: To comply with FCC RF exposure requirements, this handheld device is approved for operation in a person's hand(s) under operating conditions that provide a separation distance of 20 cm or more between its antenna and the body of persons to satisfy RF exposure compliance." Please submit a copy of the statement to be included in the manuals of the handheld products to alert end users on operating requirements for satisfying RF exposure compliance. Note: an identical statement should be included in all handheld device manuals to alert end users of the operating requirements.

The following statement will be included in the QRG¹s (Quick Reference Guide) of all the handheld devices and tagged with a warning graphic for emphasis.

“Important Note: To comply with FCC RF exposure requirements, this hand-held device is approved for operation in a user’s hand when there is 20 cm or more between the antenna and the user’s body.”

3. For the wrist-worn device (Model 1040), operating instructions and RF exposure statements should be provided to the end users to satisfy compliance. "Suggestion - Important Note: To comply with FCC RF exposure requirements, this device must be worn on the user's wrist while it is in use. Other operating configurations that have not been tested may not comply with RF exposure limit and should be avoided." Please submit a copy of the RF exposure instruction/statement to be included in the manual of this wrist-worn device to inform end users about the operating requirements for satisfying RF exposure compliance.

The following statement will be included in the WWS-1040 QRG and tagged with a warning graphic for emphasis:

“Important Note: To comply with FCC RF exposure requirements, this device must be worn on the user's wrist while it is in use. Other operating configurations that have not been tested should be avoided.”

4. Please revise above accordingly, with respect to the following proposed grant conditions for this transmitter - This device has 9 antenna configurations approved for remote/external installations and 4 antenna configurations approved for standalone operations, all requiring a separation distance of 20 cm or more from persons during device operation and some configurations also require specific minimum cable lengths to satisfy RF exposure requirements. Seven additional antenna configurations are approved for integration into specific handheld devices, as described in the filing, only for operating in a person's hand(s) and under conditions where a minimum separation distance of 20 cm or more is maintained between the antenna and a person's body to satisfy MPE requirements of 2.1091. RF exposure compliance for the wrist-worn configuration (Model 1040) is limited to wrist-worn operations, as tested previously for an equivalent device (Model 1049). Grantee must ensure the specific operating instructions and RF exposure compliance requirements are provided to end-users of all product configurations for this transmitter to satisfy RF exposure requirements.

5. The separation distance used previously in testing SAR for Model 1049 was 1.65 cm, not 1.3 cm indicated in this filing. Model 1049 had a transmission rate of 1 Mbit and a maximum operating duty factor of 60% at 500 mW peak output. The current filing is for a 2 Mbit device operating at 112 mW peak output with no duty factor specification (assuming CW). The difference between Model 1049 and Model 1040 seems to be more than the memory requirements indicated in the latest responses. Please confirm that

¹ The QRG (Quick Reference Guide) is the document that details installation and use of the device. The PRG (Product Reference Guide) is a reference manual for network admins

the two models have identical physical construction, both provide the same separation distance of 1.65 cm (as tested) and use the same antenna in order for the SAR results to be applicable for both.

The two models have identical construction except for memory and radio options. The 1040 is available with either a 1 Mbps 500 mW, a 2 Mbps 112 mW radio, or the 2 Mbps 330 mW high power version. All radios are Type II PC Cards, use the same Symbol P/N 10-32447-01 antenna, display, plastics, motherboard, etc. Both the 1 Mbps, and 2 Mbps radios use the IEEE-802.11 protocols and have the same worst case duty cycles. The only variation between them is electrically.

6. FYI: As indicated in previous correspondence, we cannot apply SAR results for the wrist-worn configuration to other handheld exposure conditions, such references have been ignored in reviewing RF exposure for this filing. This had caused additional delay in reviewing RF exposure for this filing.

7. Please confirm that antenna number 10 has been officially withdrawn from this filing, as described in the MPE info.

Antenna # 10 is officially withdrawn.

8. Please confirm the gain of antenna number 18, description has 7.5 dBi but elsewhere indicated as 5 dBi.

Number 18 has 7.5 dBi of gain with out cable. There is 2.5 dB of cable permanently attached. The assembly gain is 5 dBi.

Note: output is 331 mW at the device output terminal.

Kwok Chan

I hope these answers are satisfactory.

Respectfully,

Norman H. Nelson

About the Spectrum24 Wireless LAN Adapter

The Spectrum24 *Wireless LAN (WLAN)* adapter allows PC Card or PCI adapter slot-equipped host systems to configure, connect to and establish a Spectrum24 network. The PCI version of the WLAN adapter implements the Plug and Play standard.

Features Include:

- Low-power operation for battery-powered devices with PC Card slots.
- Standard *NDIS (Network Driver Interface Specification)*.
- Windows 95, 98, NT 4.0, 2000 and CE driver support.
- Card and Socket Services support.
- Plug and Play support.
- Power management [*Continuously Aware Mode (CAM)* and *Power Save Polling (PSP)*]



To comply with FCC RF exposure requirements, antennas that are mounted externally at remote locations or operating near users in standalone desktop or similar configurations must operate with a minimum separation distance of 20 cm from all persons to satisfy RF exposure compliance.
